San Joaquin Water Quality Management Group

Plan for Achieving Salinity/Boron and DO Objectives

Presentation to the CALFED BDPAC Drinking Water Committee

9/24/04

Plan for Achieving Salinity/Boron and DO Objectives

Overview

- Group and Objectives
- General Structure and Strategy
- Development of Tools and Management Strategies
- Early findings
- Plan Development Schedule

Plan for Achieving Salinity/Boron and DO Objectives
List of Participants

- U.S. Bureau of Reclamation
- Department of Water Resources
- USFWS
- California Dept. Fish and Game
- Central California Irrigation District
- Friant Water Users Authority
- Grassland Water District
- James Irrigation District
- Merced Irrigation District
- Modesto Irrigation District
- Oakdale Irrigation District
- San Luis Canal Company, Exchange Contractor
- San Joaquin County and Delta Water Quality Coalition
- San Joaquin County RCD
- San Joaquin River Exchange Contractors Water Authority
- San Joaquin Valley Drainage Authority
- San Joaquin River Group
- San Luis and Delta Mendota Water Authority
- South San Joaquin Irrigation District
- State Water Contractors
- Tranquility Irrigation District
- Turlock Irrigation District
- Venice Island RD 2023
- California Farm Bureau
- Western Growers
- Wine Institute

Plan for Achieving Salinity/Boron and DO Objectives

- Group Objectives:
  - Develop an integrated alternative TMDL implementation plan to meet current Salinity/Boron and Dissolve Oxygen water quality objectives at Vernalis and within Stockton Deep Water Ship Channel, respectively

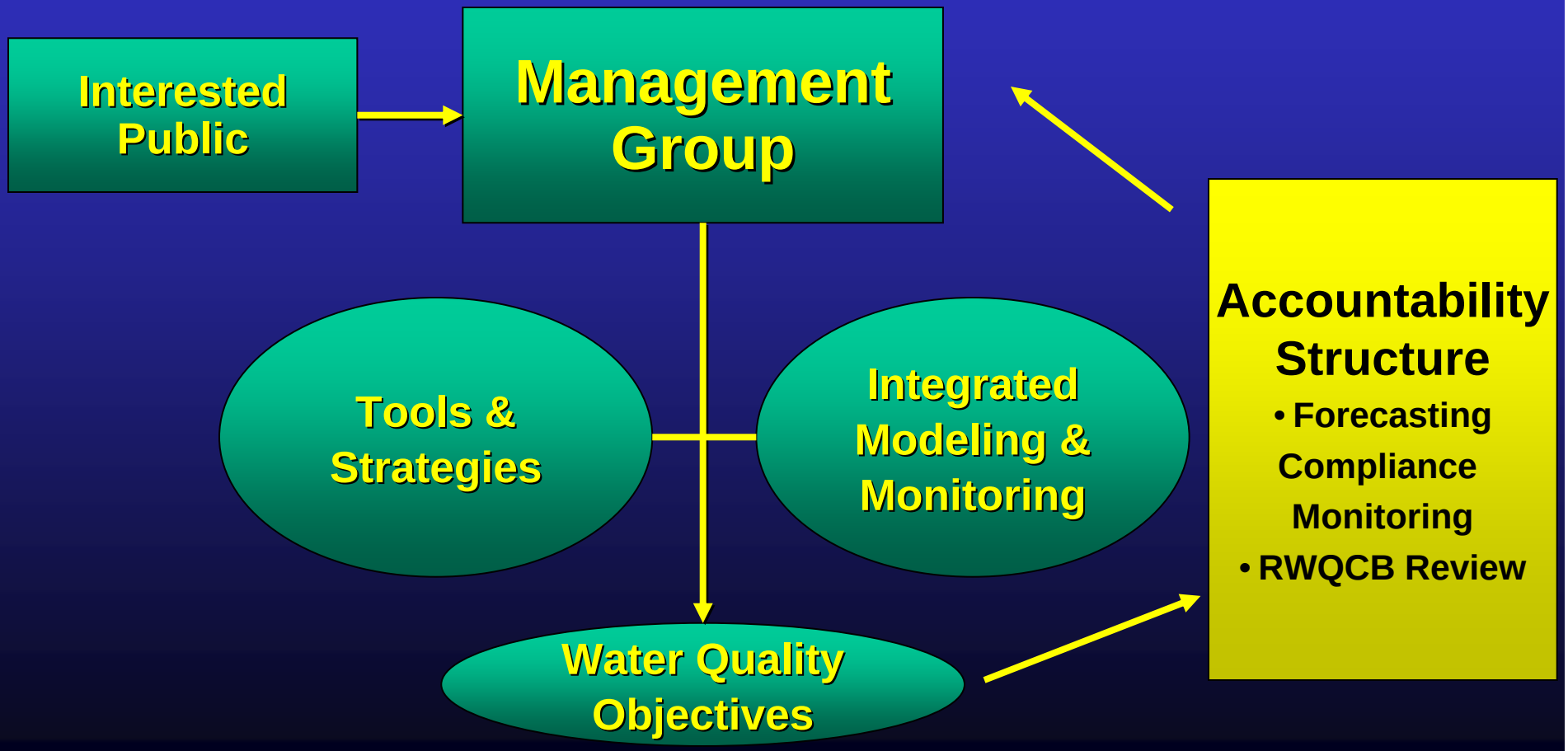
Plan for Achieving Salinity/Boron and DO Objectives

- Salinity/Boron Objectives: April-August - 0.7 EC; September-March – 1.0 EC

- Dissolved Oxygen – 6.0 mg/l September – November 6.0 between Turner Cut and Stockton, 5.0 mg/l all other Delta locations, all times

Plan for Achieving Salinity/Boron and DO Objectives

Plan Development and Execution Model



Plan for Achieving Salinity/Boron and DO Objectives – Tools and Strategies

- Flow Related Actions
- Recirculation
- Tributary Coordination:
  - Operations
  - Transfers/exchanges
  - VAMP Modifications
- Management of Urban Wastewater Flows
- South Delta Improvements Project

- Load Related Actions
- Sub-basin load reduction and management, west side of SJ Valley, Refuges and others
- Accretion Flow Diversion
- Franks Tract Modifications
- Other
- Dissolved Oxygen Aerator
- Additional real-time monitoring

Plan for Achieving Salinity/Boron and DO Objectives

Status of Tools & Management Strategies:

Flow Related Actions

- **Recirculation: Analysis of recirculating water into the San Joaquin River from CVP/SWP facilities .** *Pilot Operations complete; analysis in Progress*
- **Tributary coordination, water purchases and exchanges and transfers: operators coordinate releases for water quality.** *20,000 acre-feet of transfers to manage*

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Status of Tools & Management Strategies:

Flow Related Actions (cont.)

VAMP: Analysis of flexible VAMP operations to achieve additional water quality benefits. *No VAMP changes possible until after 2009 (ten year experiment)*

– **Urban wastewater management/exchanges: additional WWTP flows where beneficial.** *Some potential to exchange 50 cfs via Modesto wastewater flows: permit and infrastructure issues*

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Status of Tools & Management Strategies:

Flow Related Actions (cont.)

- South Delta Improvements Project:

  Barrier Operations will keep 100% of SJR flow in River April 15-May 15. Oct-Nov. can keep 90% flow in SJR = need about 1500cfs flow to eliminate any DO problems.

Plan for Achieving Salinity/Boron and DO Objectives

Status of of Tools & Management Strategies:

Salinity Control Actions

- **Sub-basin load reduction and management programs:** *monitoring in progress under Ag Waiver program; inventory of management practices; CA Water Institute study on salt concentration measures; wetlands managers developing data for discharge management; new DOI wetlands water management guidelines; pilot refuge project for 05' in development*

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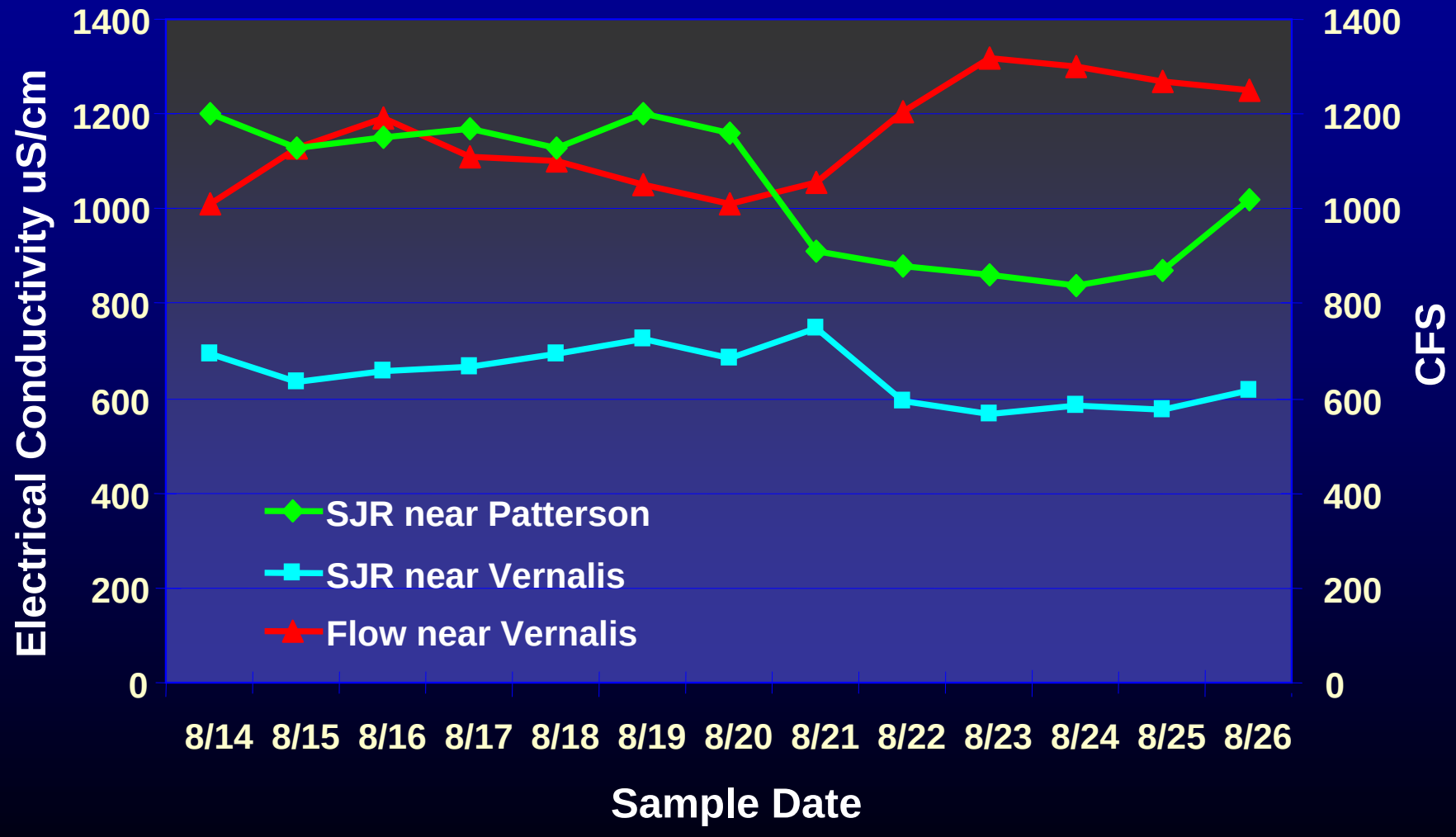
Status of of Tools & Management Strategies:

Salinity Control Actions (cont.)

- Frank's Tract modifications: *Feasibility Study authorized and underway, EIS/EIR 05-06, begin phased construction '06*
- Accretion Flow diversion: *Initial Feasibility study completed and under review*

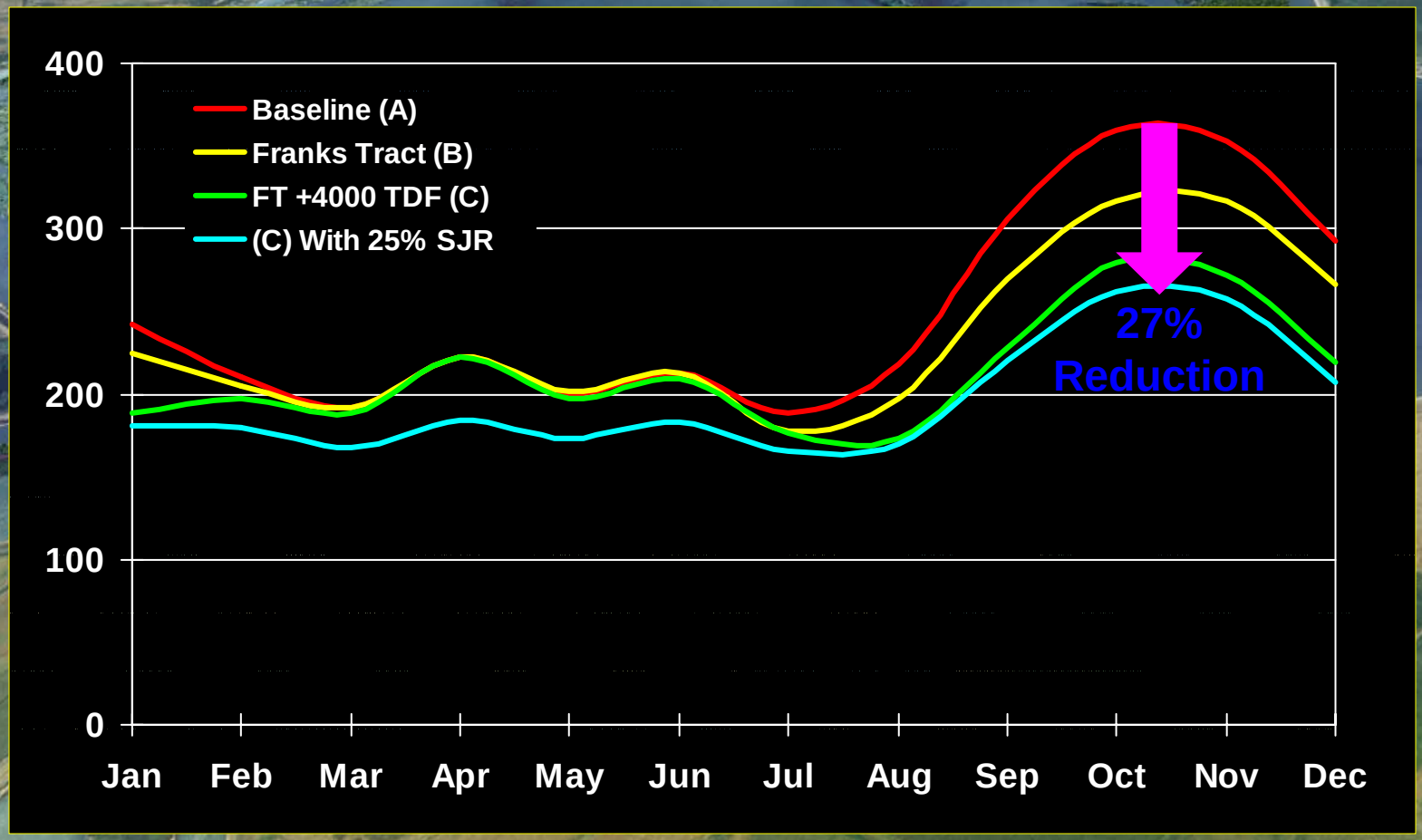
Effect of Pilot Recirculation upon San Joaquin River Salinity

August 2004



Benefits of Delta Improvement Package

Salinity @ Clifton Court Forebay (mg/l)



Typical Months of Water Quality Problems and Major Solution Tool Potential Availability/Effectiveness

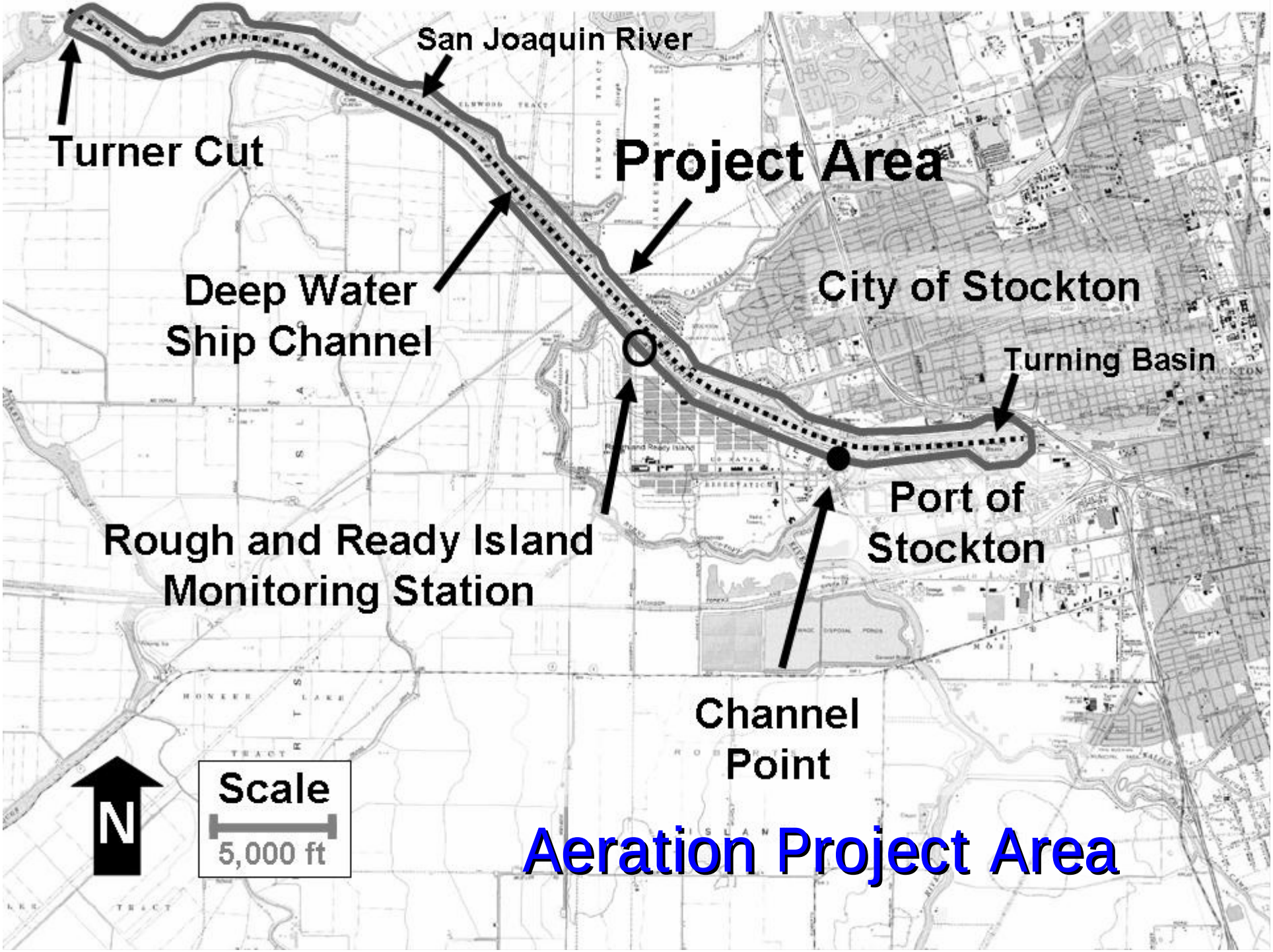
	Jan	Feb	Mar	Apr	May	Jun	July	Aug	Sept	Oct	Nov	Dec
Water Quality Problem												
Low Dissolved Oxygen:		*occasional*					prevalent					
Tools:												
South Delta Barriers Ops.	*fishery constrained*											
Aeration												
Recirculation 500 CFS *	*fishery constrained*											
20 kaf Transfers												
Excess Salinity/Boron:		*occasional*										
Tools:												
Recirculation - 250 CFS *	*fishery constrained*											
Franks Tract Improvements												
20 kaf Transfers												

* Assumes Joint Point of Diversion and Expansion of Banks Pumping Plant to 8,500 CFS Capacity

Plan for Achieving Salinity/Boron and DO Objectives – Schedule Modifications

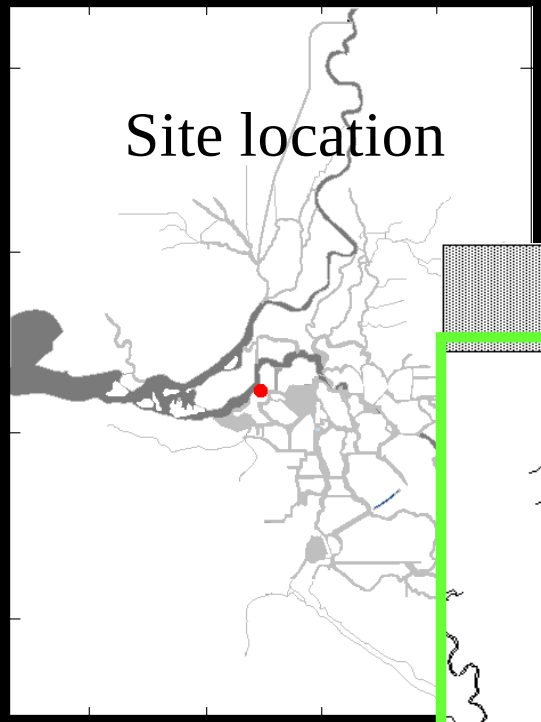
Activity	May		June		July		August		September		October		November		December	
Draft Workplan and Project Team																
Develop Tools																
Develop Monitoring Needs																
Develop Modeling Tools and Inputs																
Run Alternatives Modeling																
Develop Project Staging																
Develop Project Element Implementation Plans																
Develop Summary Implementation Plan																
Coordination with CALFED																
Develop Implementation MOU															Jan-Mar 05	
Progress Reports to RWQCB																
Review of Draft Management Plan																

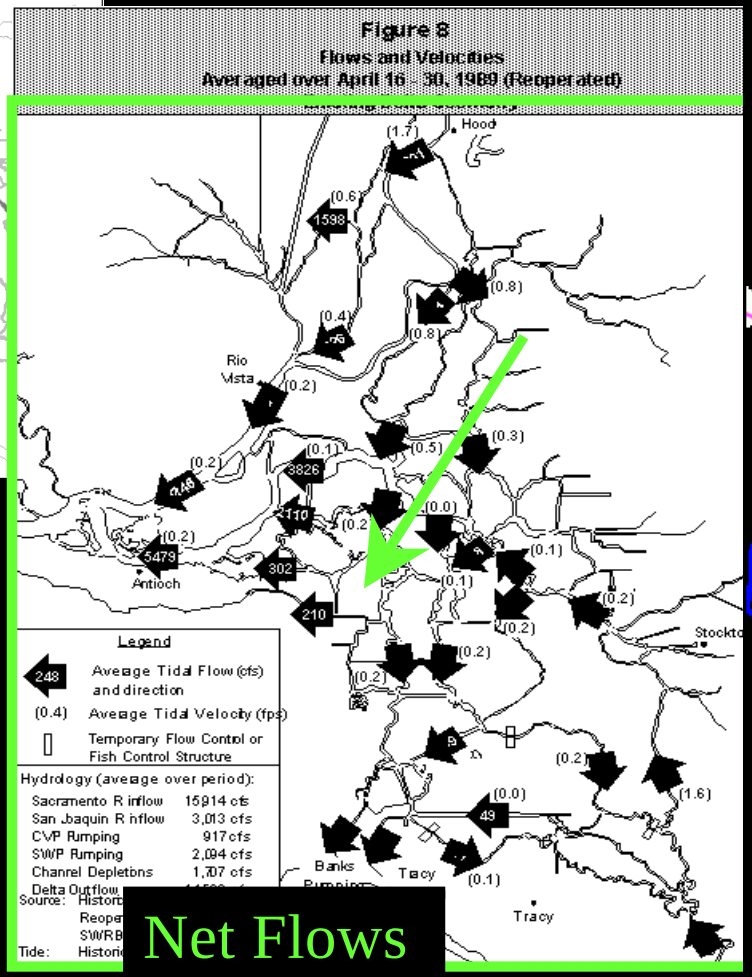
extras


San Joaquin River
Turner Cut
Project Area
Deep Water
Ship Channel
City of Stockton
Turning Basin
Port of
Stockton
Rough and Ready Island
Monitoring Station
Channel
Point
N
Scale
5,000 ft
Aeration Project Area


San Joaquin River
False River
Fresh Water
Tidal Lagoon
Concept 'B'
Repair North & East Levees

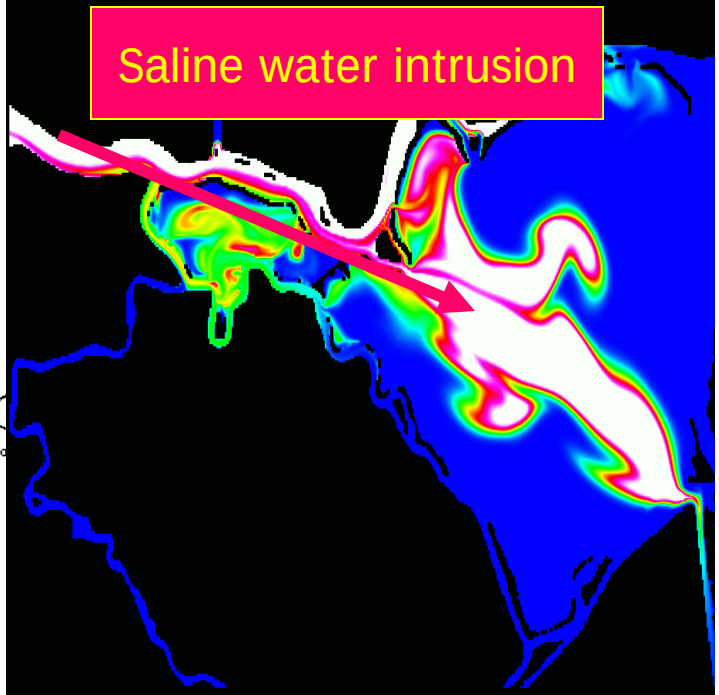
Salinity Control Actions: Franks Tract Salt Entrapment





Net Flows

Saline water intrusion



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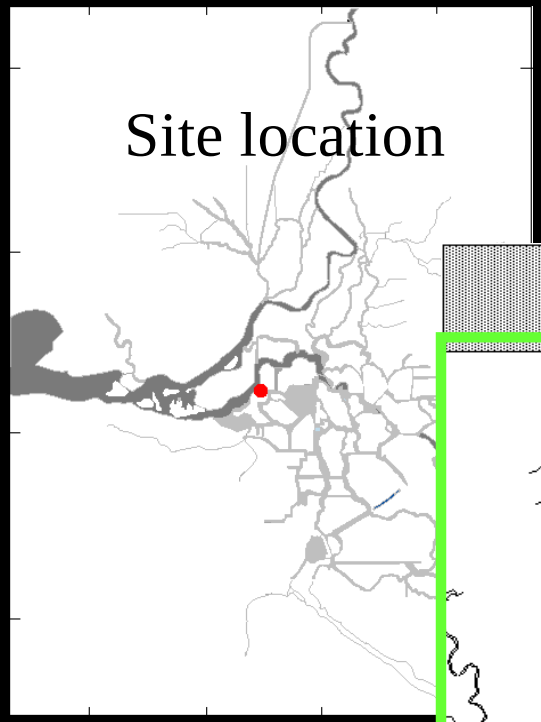
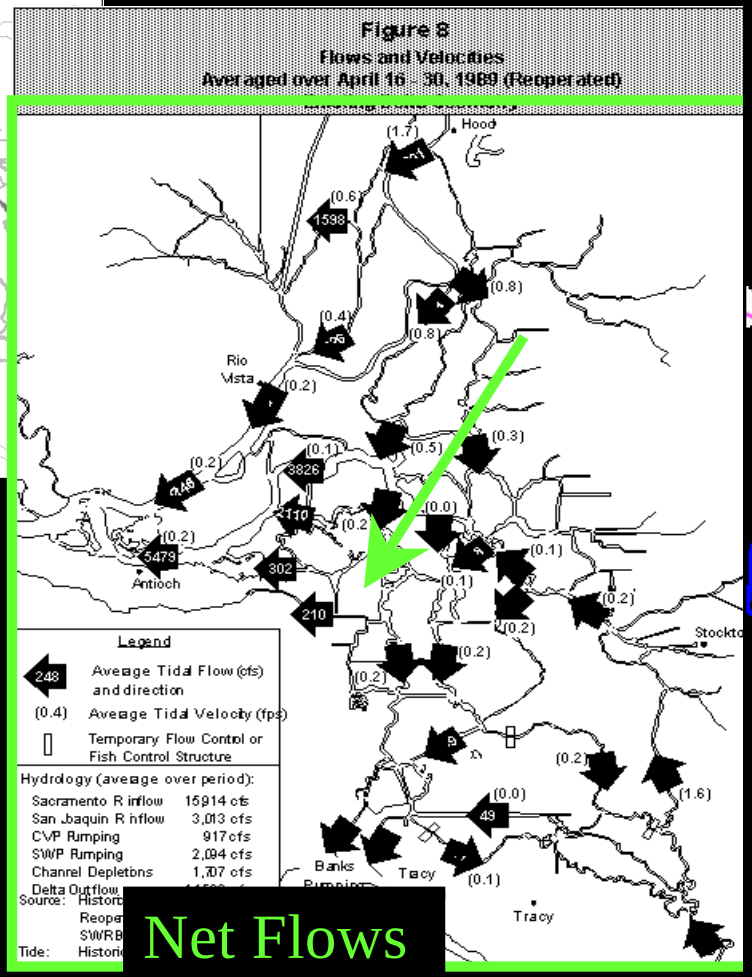
Definition of Tools and Management Strategies (cont.)

Salinity Control Actions:

- Management of saline accretion flows

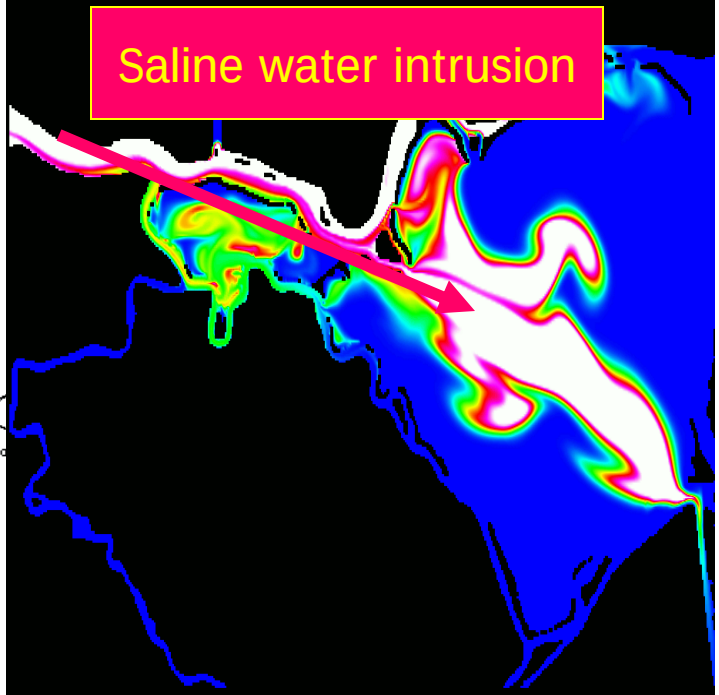
Salinity Control Actions: Franks Tract Salt Entrapment





Net Flows

Saline water intrusion



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